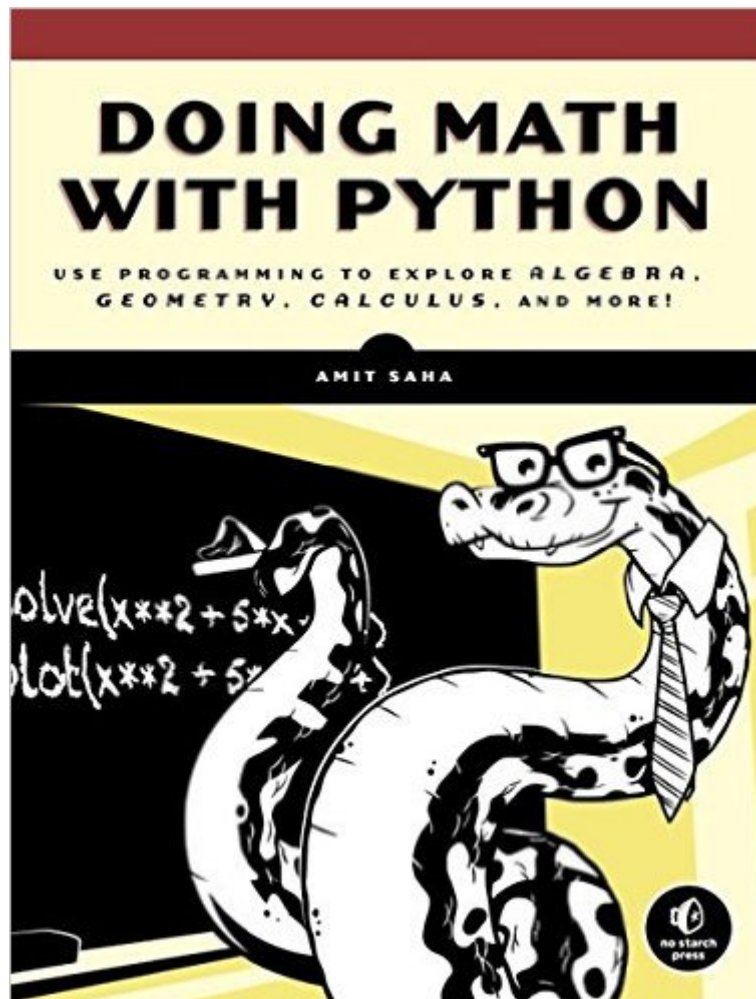# Doing Math With Python: Use Programming To Explore Algebra, Statistics, Calculus, And More!

Synopsis

Doing Math with Python shows you how to use Python to delve into high schoolâ"level math topics like statistics, geometry, probability, and calculus. You'll start with simple projects, like a factoring program and a quadratic-equation solver, and then create more complex projects once you've gotten the hang of things.Along the way, you'll discover new ways to explore math and gain valuable programming skills that you'll use throughout your study of math and computer science. Learn how to:Describe your data with statistics, and visualize it with line graphs, bar charts, and scatter plotsExplore set theory and probability with programs for coin flips, dicing, and other games of chanceSolve algebra problems using Python's symbolic math functionsDraw geometric shapes and explore fractals like the Barnsley fern, the Sierpinski triangle, and the Mandelbrot setWrite programs to find derivatives and integrate functionsCreative coding challenges and applied examples help you see how you can put your new math and coding skills into practice. You'll write an inequality solver, plot gravity's effect on how far a bullet will travel, shuffle a deck of cards, estimate the area of a circle by throwing 100,000 "darts" at a board, explore the relationship between the Fibonacci sequence and the golden ratio, and more.Whether you're interested in math but have yet to dip into programming or you're a teacher looking to bring programming into the classroom, you'll find that Python makes programming easy and practical. Let Python handle the grunt work while you focus on the math.

Book Information

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Customer Reviews

I received a preview copy of this from No Starch Press but after spending time with it I would gladly have paid full price for it. I teach math and physics in high school and am in charge of an after school MESA program. After talking with my students about what interested them most for the year we decided to learn programming together and I wanted to put in the twist of doing math at the same time.This is an amazing book. I have enjoyed working through the material with my students. During the first chapter Working With Numbers and going through some of the operations in programming we would diverge into discussions about why a certain operator was important and how it can be used. For example, we spent several minutes talking about modulo because the students didn't think getting just the remainder was important. We then used Python to determine what day of the week it would be in some ridiculous number of days by using modulo 7. It blew their minds and I could see a light go on in their eyes. The students haven't learned some of the mathematics material in the book but that's great since they get to see it for themselves in action before a typical lecture. I am looking forward to when we get to the geometry and fractals chapter. As a teacher I highly recommend this book as a way to work with someone in learning both math and programming.As someone that already has experience with math and some programming (very slight experience in the programming) I still recommend this book. I wish I could have encountered this book earlier in my own education as a way to better solidify the math I was learning. The pacing and explanations are great for self-study.

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